

(12) INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(19) World Intellectual Property
Organization
International Bureau



(43) International Publication Date
17 June 2004 (17.06.2004)

PCT

(10) International Publication Number
WO 2004/051697 A2

(51) International Patent Classification⁷: **H01J 49/00**

(21) International Application Number:
PCT/EP2003/013328

(22) International Filing Date:
7 November 2003 (07.11.2003)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:
0226160.0 8 November 2002 (08.11.2002) GB

(71) Applicant (for all designated States except US): **DIAG-NOSWISS S.A.** [CH/CH]; Rte de l'Île-au Bois 2, c/o Cimo SA, Case Postale, CH-1870 Monthey (CH).

(72) Inventors; and

(75) Inventors/Applicants (for US only): **ROSSIER, Joël, Stéphane** [CH/CH]; Chemin des Ravines, CH-1895 Vionnaz (CH). **REYMOND, Frédéric** [CH/CH]; Rte de Corsy 23, CH-1093 La Conversion (CH).

(74) Agent: **HANSON, William, Bennett**; Bromhead Johnson, Kingsbourne House, 229-231 High Holborn, London WC1V 7DP (GB).

(81) Designated States (*national*): AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW.

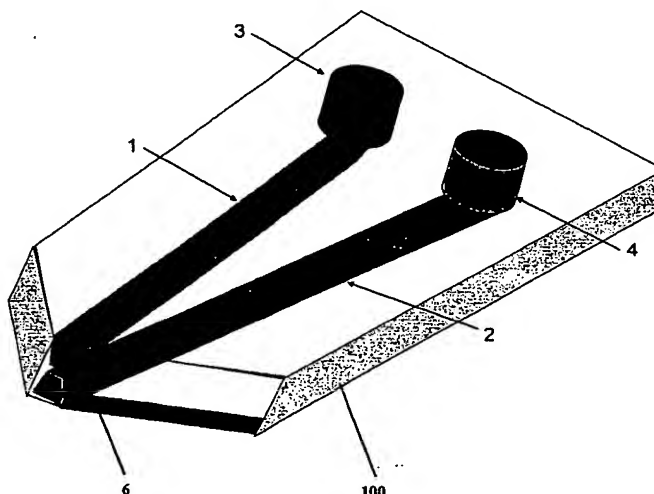
(84) Designated States (*regional*): ARIPO patent (GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, RO, SE, SI, SK, TR), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

Published:

— without international search report and to be republished upon receipt of that report

For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

(54) Title: APPARATUS FOR DISPENSING A SAMPLE IN ELECTROSPRAY MASS SPECTROMETERS



(57) Abstract: The present invention relates to an apparatus to dispense a sample for subsequent electrospray ionisation (ESI) mass spectrometry (MS) analysis, to a method of fabricating such apparatus and to applications of such apparatus in biological and chemical analysis. The apparatus consists of an electrically non-conductive substrate (100) comprising at least two covered microstructures (1, 2) (generally microchannels) having one extremity (6) formed at the edge of the substrate, one of said microstructures containing the sample to be dispensed into a mass spectrometer by electrospray ionisation and at least a second of said microstructure containing a fluid used as sheath liquid or sheath gas, said at least two microstructures (1, 2) being formed in such a manner that the sample and the sheath liquid/gas come in contact to each other and/or are mixed directly in the Taylor cone of the spray.